Massachusetts
MIT Sea Grant 11
2012 NSGO Review

Michael Liffmann

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MIT SG Management

- Chrys Chryssostomidis—Director (0.5 FTE)
- E. Eric Adams– Assoc. Director for Research (0.2)
- Tim Downes –Assistant Director (1.0)
- Judy Pederson—MAS Leader (1.0)
- Kathy de Zengotita—Program Coordinator (1.0)

Large Program

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MIT SG Management

Functional Area	# of individuals	# of FTEs supported by SG	# of FTEs supported by match/leverage
Mgt/Admin	9	4.06	3.16
Comm.	3	1.1	0.12
Ext.	16	1.5	2.1
Education	5.2	5.2	1.2
Research	3.2	3.2	10.2

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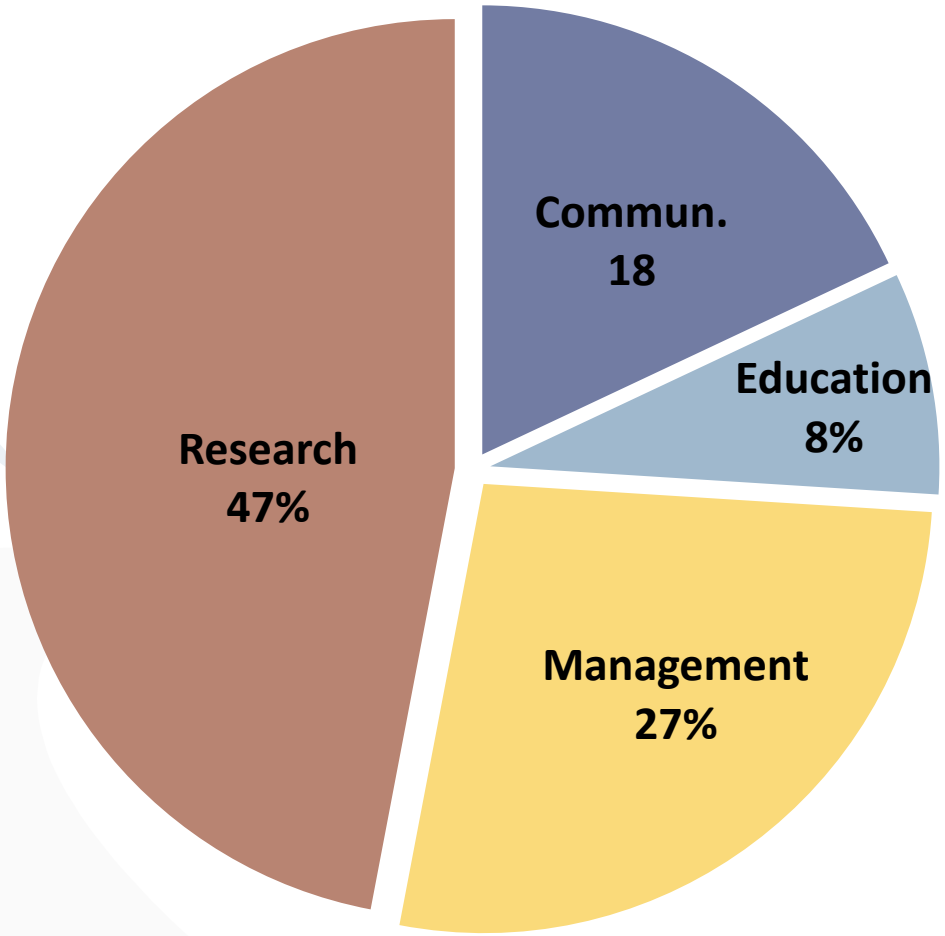
MIT SG 2010 Core Budget (Fed. and Match) by Functional Area



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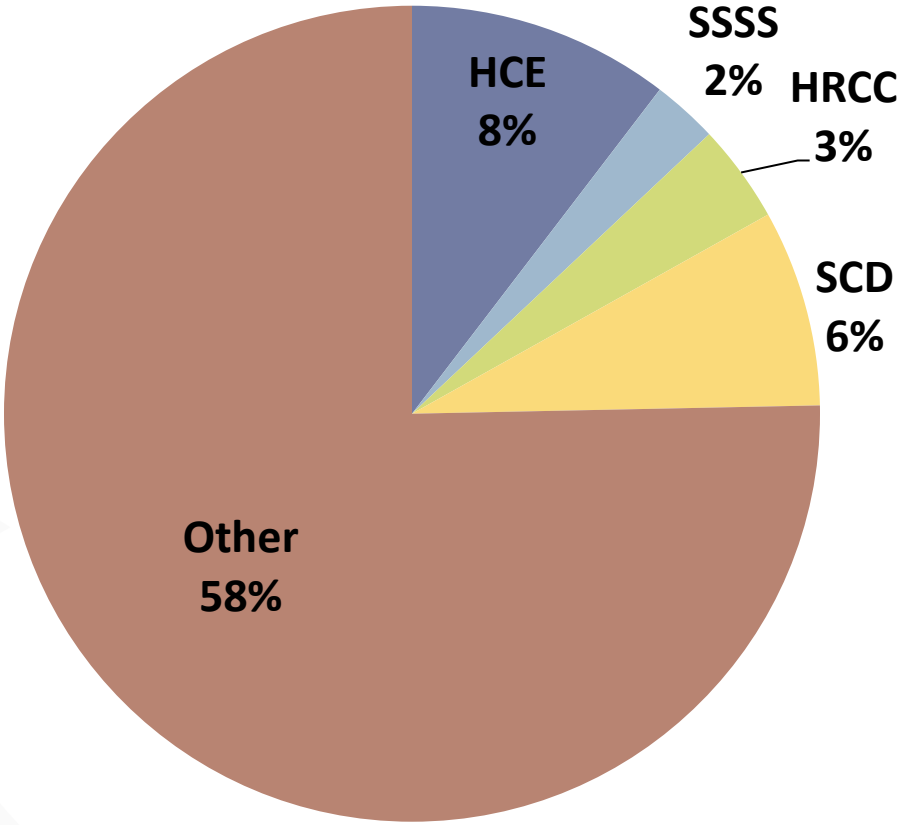
MIT SG 2010 Budget/Focus Area
(Fed. + Match + Pass-Through + Managed Leveraged Funds)



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Significant MIT SG Changes (since Jan. 2011)

- Appointment of Nancy Adams as Communications Specialist
- Appointment of Barry Jackman as Financial Officer
- Rachel VanCott made Ocean Literacy Communicator

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MIT SG Program-- RFP Process

- RFP—January of each year. Pre-proposals due February
- Joint Advisory Committee (JAC)– reviews pre-proposals in April and issues recommendations re full proposals
- PIs—Submit full proposals in early June
- Peer reviews– June-July; blinded reviews sent to PIs in early August
- Mid-August– Proposals, reviews and rebuttals to TRP
- Mid September—TRP recommends, JAC advises, and MIT SG (with NSGO consent) selects proposals.

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MIT SG 2012-2013 Projects – Research Metrics

Core Proposals	# of Proposals	# of institutions	# from home institutions
Pre-proposals submitted	18	8	3
Full proposals submitted	8	4	3
Proposals Funded	5	3	2

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MIT SG- Contribution to National Performance Measures and Metrics

Focus Area	Metric	Actual
HCE	# of communities using MITIS to minimize introductions	95
SSSS	# of communities/areas receiving CSF info outside MA	600
HCE	# of fed. managers capable of resolving saline-related “dead-zones” in Charles basin	5
Other	# of H.S. students engaged in ocean science through Blue Lobster Bowl competition	151
Other	# of schools involved in advanced Sea Perch projects	7

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MIT SG Impacts

FOCUS AREAS: HCE AND SCD

Goal: Sound scientific information to support ecosystem-based approaches to managing the coastal environment

Models to Predict Coastal Change

- **RELEVANCE: Long-term records show a regional warming trend in MA coastal waters altering the ecosystem. The ability to predict shifts in a complex ecosystem is key to effective management of fisheries, and to maintaining beach health and near-shore water quality.**

- **RESPONSE: Sea Grant funded researchers are using a Finite-Volume Community Ocean Model (FVCOM) to provide an accurate picture of coastal changes to support effective management.**

- **RESULTS: FVCOM improved sea level simulation for the MA coast with a readily accessible system. Several private companies have successfully used this model for water quality assessment. Recognized nationally and recommended for use elsewhere. Large user community.**

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MIT SG Impacts

FOCUS AREAS: SSSS

Goal: A healthy domestic seafood industry that harvests, produces, processes, and markets seafood responsibly and efficiently

Community Supported Fishery

- **RELEVANCE - Community Supported Fisheries (CSF) is a new economic model, based on the Community Supported Agriculture model that has transformed urban locations into thriving produce markets each summer.**
- **RESPONSE - Cape Ann Fresh Catch (CAFC) is modeled after a similar operation in Maine. MIT Sea Grant helped CAFC expand into Boston and surrounding areas. Also, established safe handling requirements for member boats to ensure high quality seafood.**
- **RESULTS- CAFC now serves thousands of customers in 17 MA communities. The CAFC's business model provides fishers with greater flexibility and a much higher share of the profit (3 -5 times) from their catch. The approach encourages sustainable fishing and minimizes waste. Model has spread to other states.**

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MIT SG Impacts

FOCUS AREAS: SCD and HCE

Goal: Coastal communities that make efficient use of land, energy and water resources and protect the resources needed to sustain coastal ecosystems and quality of life.

Alternative Energy

- **RELEVANCE- There is strong resistance from fishermen and homeowners to a proposed siting of a wind farm in Cape Cod waters. Yet, alternative energy sources are needed to serve residents and tourists, while preserving the Cape's cherished resources and tourism industry .**
- **RESPONSE- MIT Sea Grant funded research to develop a user-friendly model to evaluate the impact of large-scale marine renewable energy installations on coastal hydrodynamics.**
- **RESULTS- Researcher served on the technical advisory board for the Barnstable County Ocean Management Planning District of Critical Planning Concern (DCPC) for renewable energy. His work was used to examine the energy potential of sites within the DCPC boundaries and used in the final report prepared for the DCPC. Results also went to the MA Clean Energy Center for their white paper on marine hydrokinetic projects and regulations in MA.**

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MIT SG-2010 Research Accomplishments

Using Technology to Assess the Invasive Sea Squirt, *Didemnum vexillum*, Impacts on Fisheries and Ecosystems (F. Hover et al, regional project)

- **A total of 15 days in the field captured 45,000 images of the sea floor, some of which included D. vexillum. One of the co-PIs, Emmanuel Boss, UMaine, modified a radiometry for in-situ measurements of Didemnum vexillum reflectance and fluorescence. The modified radiometer will be used on the AUV for surveying Didemnum quickly and efficiently. In addition, Robert Whitlatch, UConn, conducted a number of field experiments examining how variations in density and species diversity of other fouling species influenced the growth and survival of Didemnum.**
- **Very preliminary analyses indicate that enhanced species richness decreases the Didemnum's growth rate. Also, increasing the coverage (densities; from 30% to 90%) of other fouling species reduced the growth rate and survival of Didemnum.**
- **These studies along with field studies provide insights into the ecological impacts of Didemnum in gravel/sand habitats in eastern Long Island Sound, specifically to assess whether Didemnum mats provide infaunal species a refuge from demersal predators (e.g., fish, crabs).**

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MIT SG-2010 Research Accomplishments

Wireless Underwater Video Transmission (M. Stojanovic)

- Research so far has focused on the design of component subsystems needed to demonstrate the feasibility of wireless underwater video transmissions. These component subsystems include (1) modulator/demodulator, and (2) video compression/decompression and (3) hardware/software platform for transmission/reception of signals.
- The next phase of work will focus on (1) assessing the visual quality of underwater images and video at varying bit rates, (2) assembling hardware components that will enable transmission over longer distances (current transmissions are limited to tens of feet) , (3) experimenting with signal transmission over hundred-meter distances and making any necessary adjustments to the modulation/detection algorithms.

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Sources

- Planning, Implementation, and Evaluation Resources (PIER) https://pier.seagrant.noaa.gov
- Personal Communication with MIT SG
- 2012-2013 Omnibus Proposal
- MIT SG Web Site
- 2010 Site Review report, Briefing Book and Program response

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